



## Mortalità e immigrazione in Italia.

### I risultati della rete degli Studi Longitudinali Metropolitan

Barbara Pacelli

Agenzia sanitaria e sociale regionale - Emilia-Romagna

[bpacelli@regione.emilia-romagna.it](mailto:bpacelli@regione.emilia-romagna.it)

- **intro: mortalità e immigrazione**
  - in Italia
- **la rete degli Studi Longitudinali Metropolitani (SLM)**
- **studio di mortalità e immigrazione nelle coorti SLM**
  - Torino e Reggio Emilia
- **sviluppi della rete SLM**



## mortalità e immigrazione

- **prima immigrazione:** mortalità generale più bassa di quella della popolazione del Paese ospitante
  - effetto migrante sano, effetto salmone, effetto di ritorno di chi non riesce a integrarsi *Gadd 2006, Razum 2000, 2006, Ullmann 2011*
  
- **con il passare del tempo:** comportamenti a rischio per la salute, cumulazione svantaggi, invecchiamento *Bollini 1995, Lara 2005, Malmusi 2010*
  
- **variabilità** per gruppi etnici, genere, età, cause specifiche, paese di destinazione, *Bos 2004, Rafnsson 2013, Malmusi 2015*

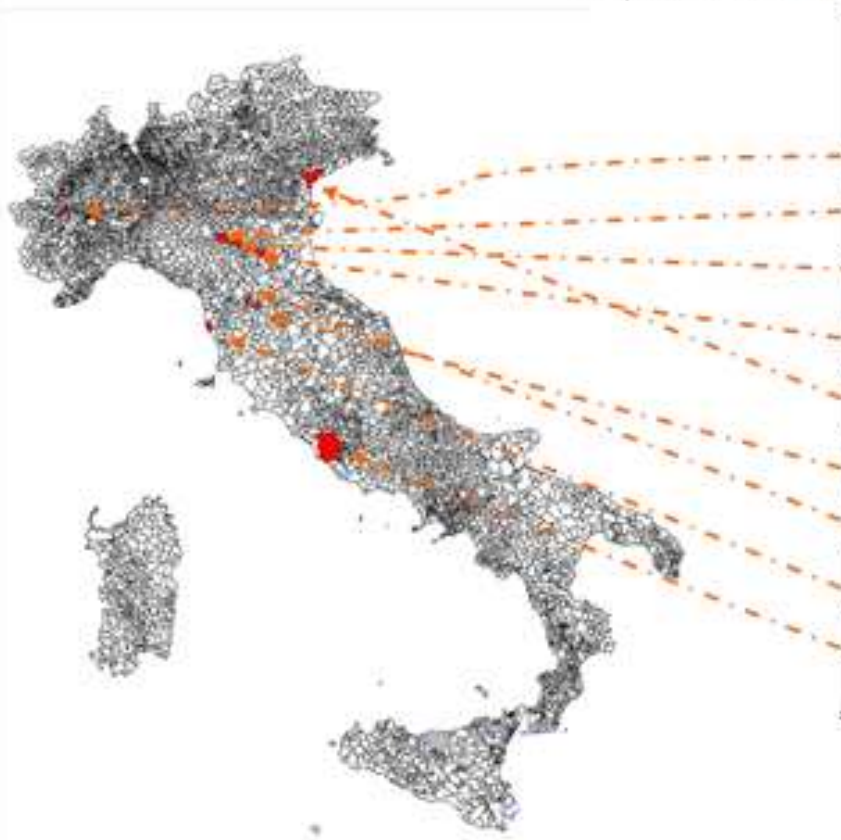
## mortalità e immigrazione

in **Italia**:

- rapida crescita **immigrazione da Paesi a Forte Pressione Migratoria (PFPM)** dall'inizio anni 2000
  - 1/01/2015: 8,3% (ISTAT)
- **pochi studi di mortalità e immigrazione, con approccio trasversale** *CCM 2007,2009, Osservasalute 2006,2008, Martini 2011, Fedeli 2015*
- **limiti metodologici: denominatori**
- **ad oggi nessuno studio longitudinale**

## la rete degli Studi Longitudinali Metropolitan (SLM)

*Popolazione in studio; numero assoluto abitanti al censimento 2001 per città*



Comune	Studio	Popolazione al Censimento 2001
Torino	Torino	865,263
Reggio Emilia	Emilia	141,877
Modena		175,502
Bologna		371,217
Venezia	Venezia	271,073
Firenze	Toscana	356,118
Livorno		156,274
Prato		172,499
Roma	Roma	2,546,804
<b>Totale</b>		<b>5,056,627</b>

## la rete degli Studi Longitudinali Metropolitan (SLM)

... per la valutazione dei profili di salute e di assistenza alla popolazione immigrata





## studio di mortalità nelle coorti SLM

- archivio anagrafico **integrato** con il registro delle cause di morte (transcodifica ICD10→ICD9)
- stima **anni-persona**
- **immigrati: residenti con cittadinanza in paese a forte pressione migratoria (PFPM)**
- età al calendario **1-64 anni**
- **Mortality Rate Ratios (MRRs)** and CI 95% con modelli di Poisson
  - PFPM vs italiani
  - aggiustati per età e anno di calendario
  - stratificati per genere

## studio di mortalità nelle coorti SLM (coorti chiuse)

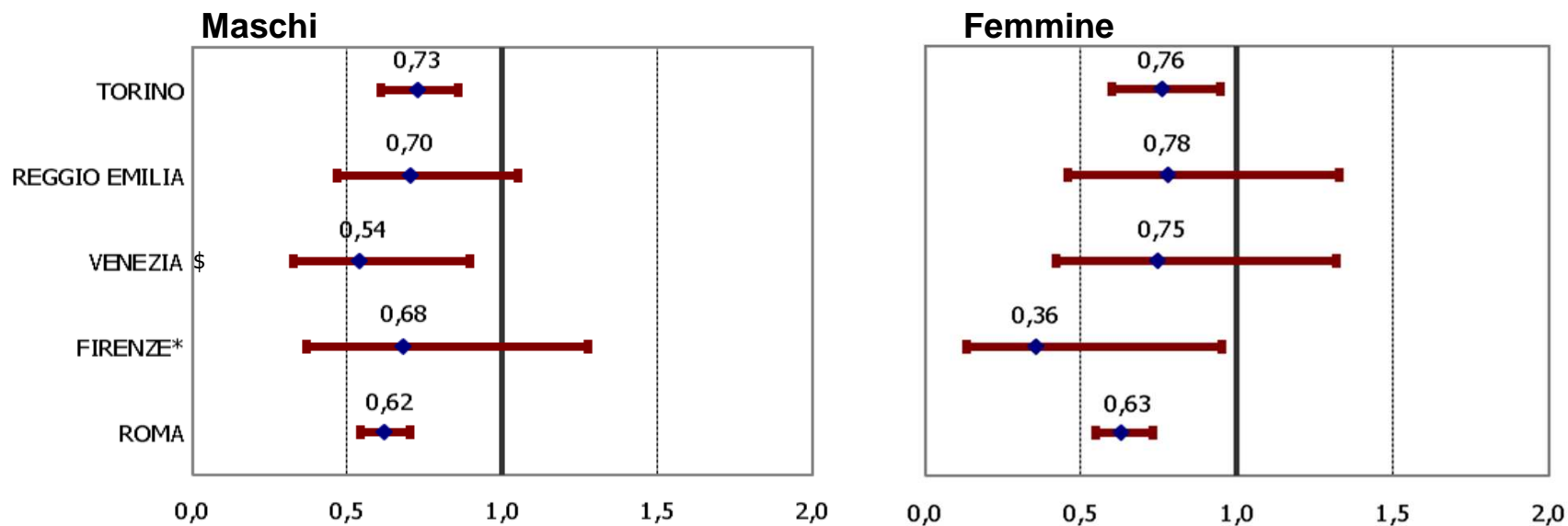
**mortalità nelle coorti censuarie (Caranci et al. AIE 2014)**

**Torino, Reggio Emilia, Venezia, Firenze, Roma**

**arruolamento: 21/10/2001**

**follow-up: 31/12/2012**

**MRR aggiustati per età e calendario (IC al 95%)**



\$ periodo 21/10/2001-31/12/2011

\* periodo 21/10/2001-31/12/2010

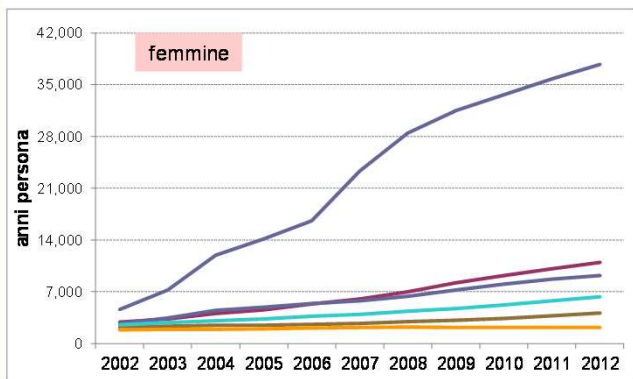
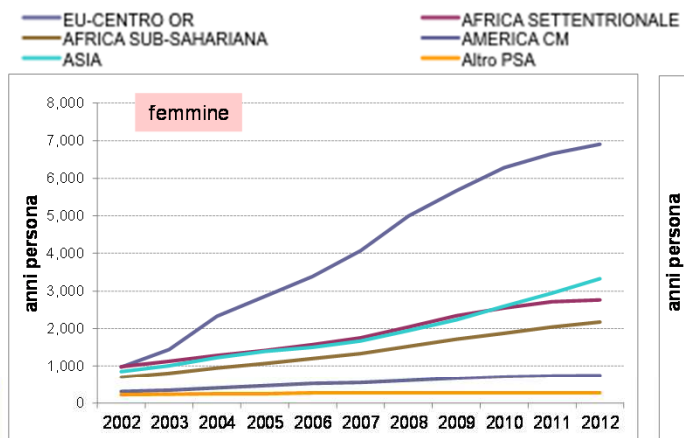




# studio di mortalità nelle coorti SLM (coorti aperte)

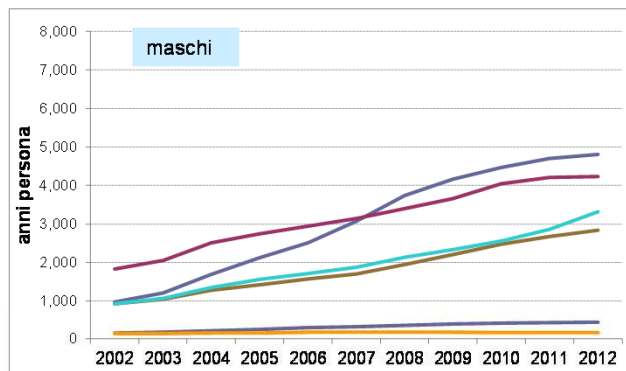
creazione delle coorti aperte  
 Torino e Reggio Emilia (Pacelli et al, AIE 2014)

## descrizione coorti

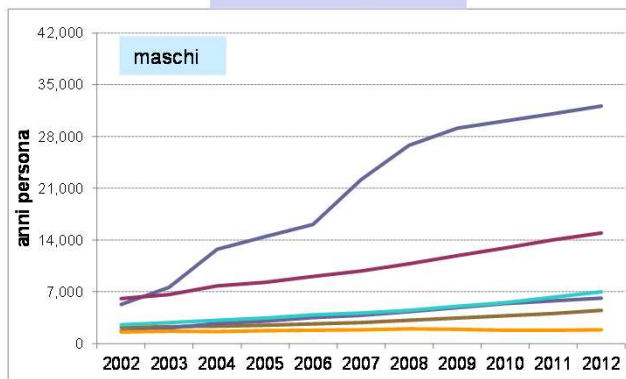


## risultati (4/6)

### Reggio Emilia



### Torino



\* anni persona vissuti dagli arruolati dal 1/01 al 31/12 di ogni anno

progetto INMP  
 ngitudinali MetropolitanI



**Il futuro dell'epidemiologia  
per l'ambiente, la salute e l'equità**  
 Napoli, 5-6-7 novembre 2014

**La rete degli Studi Longitudinali MetropolitanI  
per la valutazione dello stato di salute  
e dei profili di assistenza alla popolazione immigrata:  
creazione delle coorti aperte e mortalità per le città di  
Torino e di Reggio Emilia**

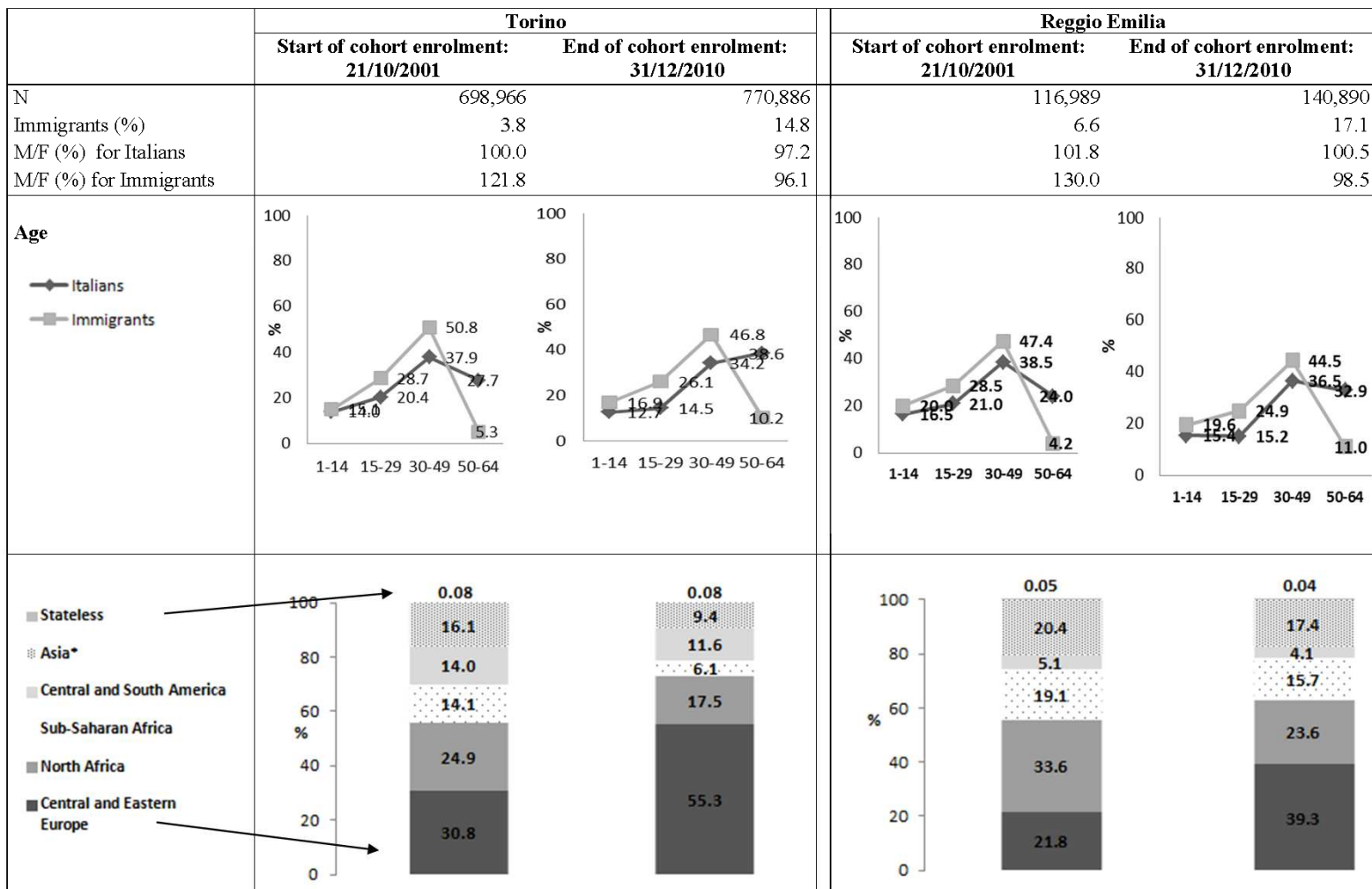
Barbara Pacelli<sup>1</sup>, Chiara Di Girolamo<sup>1</sup>, Nicola Caranci<sup>1</sup>, Serena Broccoli<sup>2</sup>, Nicolás Zengarini<sup>3</sup>, Teresa Spadea<sup>3</sup>, Giuseppe Costa<sup>4</sup>, Alessio Petrelli<sup>4</sup>, Paolo Giorgi Rossi<sup>2</sup>, e il gruppo di lavoro del progetto interregionale INMP\*

## studio di mortalità nelle coorti SLM (coorti aperte)

- **coorti aperte di Torino and Reggio Emilia**  
aggiornamento:
  - arruolamento: 21/10/2001- 31/12/2010
  - fine follow-up: 31/12/2013
  - anni-persona
  - **mortalità totale e causa-specifica**
  - **macroarea di Paese di cittadinanza**
  - **armonizzazione** per aggregazione database
  - **analisi congiunta** con studio dell'interazione tra città

## studio di mortalità nelle coorti SLM (coorti aperte)

Characteristics of the cohort by city (Turin, Reggio Emilia) at the start and the end of the enrolment period. Calendar age 1-64.



## studio di mortalità nelle coorti SLM (coorti aperte)

### All-cause mortality: person-years (PY), deaths and adjusted\* MRRs

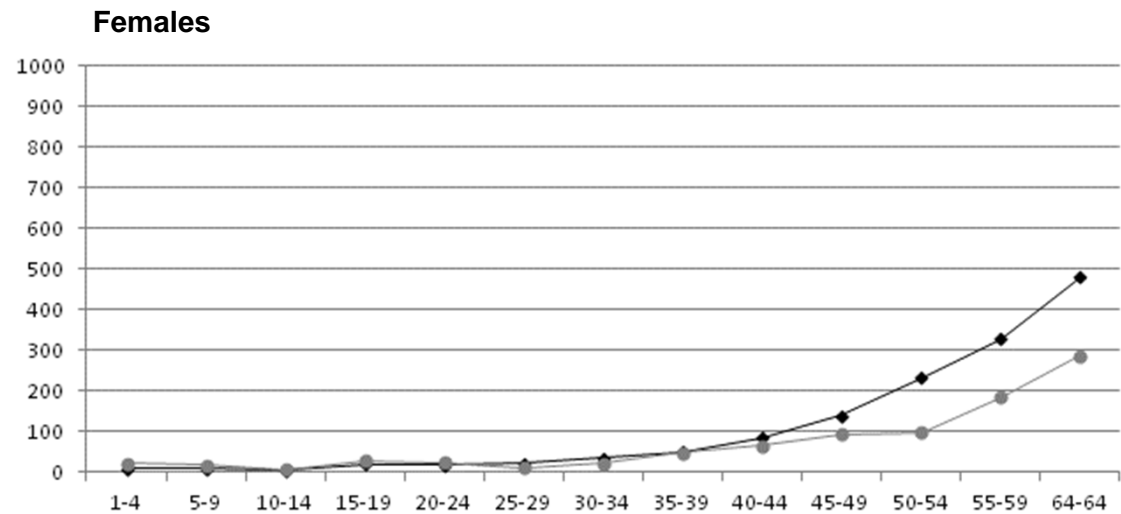
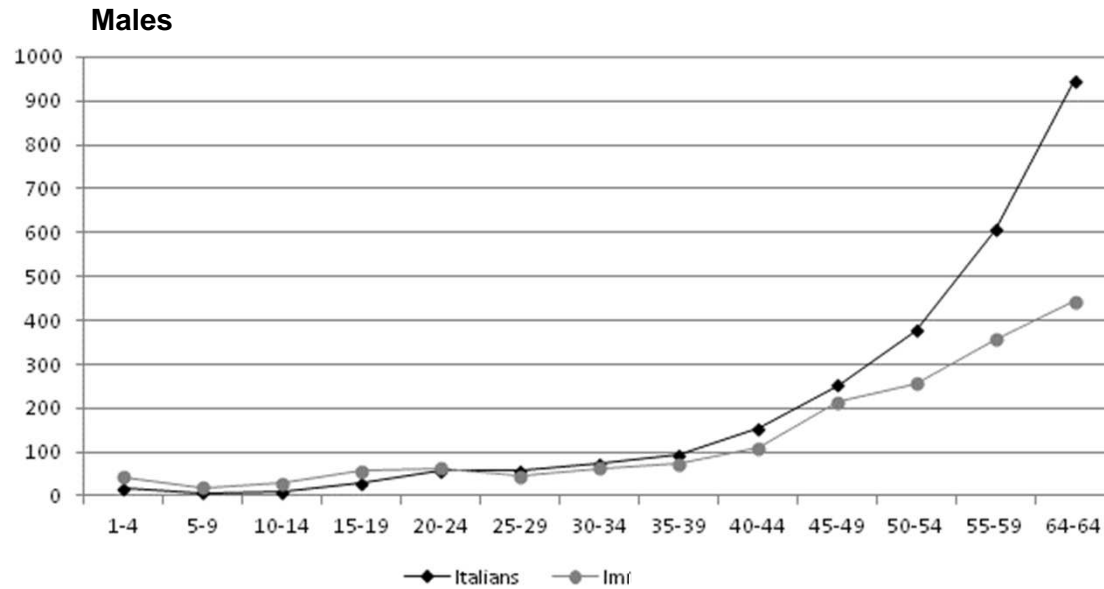
Citizenship	Male			Female		
	PY	Deaths	MRR (CI 95%)	PY	Deaths	MRR (CI 95%)
<b>Italians</b>	4,210,156	10,107	1	4,210,845	5,806	1
<b>Immigrants</b>	568,085	519	<b>0.82 (0.75-0.90)</b>	557,478	268	<b>0.71 (0.63-0.81)</b>

\* MRR adjusted for calendar period, calendar age-group (5 year class) and city.



## studio di mortalità nelle coorti SLM (coorti aperte)

Age-specific all-cause mortality rate (x 100,000 py) by citizenship and gender



## studio di mortalità nelle coorti SLM (coorti aperte)

### All-cause mortality by area of citizenships: person-years (PY), deaths and adjusted\* MRRs

Citizenship	Male			Female		
	PY	Deaths	MRR (CI 95%)	PY	Deaths	MRR (CI 95%)
Italians	4,210,156	10,107	1	4,210,845	5,806	1
Central and Eastern Europe	265140	242	<b>0.85 (0.75-0.97)</b>	294,262	131	<b>0.63 (0.53-0.75)*</b>
Sub-Saharan Africa	53802	79	<b>1.29 (1.03-1.61)</b>	45,678	36	<b>1.70 (1.22-2.36)</b>
North Africa	135761	114	<b>0.74 (0.62-0.89)</b>	82,997	40	0.84 (0.62-1.15)
Central and South America	45502	34	<b>0.63 (0.45-0.88)</b>	69,713	28	<b>0.51 (0.35-0.75)</b>
Asia**	67521	50	<b>0.64 (0.48-0.84)</b>	64,527	33	0.73 (0.52-1.03)

\* MRR adjusted for calendar period, calendar age-group (5 year class) and city.

\*\* Israel and Japan are not included

#### § city interaction (p < 0.05)

Citizenship	Female			
	Turin		Reggio Emilia	
	MRR*	IC 95%	MRR*	IC 95%
Italy	1		1	
Central and Eastern Europe	<b>0.69</b>	<b>0.57-0.84</b>	<b>0.41</b>	<b>0.25-0.66</b>
Sub-Saharan Africa	<b>2.13</b>	<b>1.49-3.04</b>	0.74	0.30-1.79

## studio di mortalità nelle coorti SLM (coorti aperte)

**Table 2** Cause-specific mortality: deaths, crude rates (x 100,000 py) and Standardised mortality ratios (SMR) with 95% Confidence intervals (CI ) by gender and citizenship. Calendar age 1-64

	Males					Females				
	Italians (tot PY=4,210,156)		HMPC (tot PY=568,085)			Italians (tot PY=4,210,845)		HMPC (tot PY=557,478)		
	deaths	crude rate	deaths	crude rate	SMR*	deaths	crude rate	deaths	crude rate	SMR*
001–139: infectious and parasitic diseases	115	2.7	13	2.3	1.53 (0.89-2.64)	56	1.3	6	1.1	1.38 (0.62-3.06)
140–239: neoplasms	4225	100.4	128	22.5	0.66 (0.55-0.78)	3440	81.7	111	19.5	0.52 (0.43-0.62)
240–279: endoc. nutr. metab. diseases, and immunity disorders	395	9.4	15	2.6	0.50 (0.30-0.83)	184	4.4	10	1.8	0.73 (0.39-1.35)
280–289: diseases of the blood and blood-forming organs	22	0.5	3	0.5	1.40 (0.45-4.33)	16	0.4	1	0.2	0.65 (0.09-4.61)
290–319: mental disorders	244	5.8	5	0.9	0.14 (0.06-0.34)	55	1.3	1	0.2	0.14 (0.02-1.02)
320–389: diseases of the nervous system and sense organs	220	5.2	8	1.4	0.49 (0.25-0.98)	189	4.5	2	0.4	0.15 (0.04-0.59)
390–459: diseases of the circulatory system	2314	55.0	89	15.7	0.71 (0.58-0.88)	781	18.6	29	5.1	0.65 (0.45-0.93)
460–519: diseases of the respiratory system	323	7.7	12	2.1	0.64 (0.36-1.12)	178	4.2	4	0.7	0.38 (0.14-1.00)
520–579: diseases of the digestive system	666	15.8	21	3.7	0.48 (0.31-0.74)	278	6.6	9	1.6	0.52 (0.27-1.00)
580–629: diseases of the genitourinary system	67	1.6	1	0.2	0.32 (0.04-2.24)	38	0.9	0	0.0	-
630–679: compl.of pregnancy, childbirth, and the puerperium						4	0.1	2	0.4	-
680–709: diseases of the skin and subcutaneous tissue	5	0.1	0		-	6	0.1	2	0.4	-
710–739: diseases of the musculoskel. syst. and connective tissue	14	0.3	0		-	43	1.0	4	0.7	1.56 (0.59-4.17)
740–759: congenital anomalies	44	1.0	9	1.6	1.47 (0.76-2.82)	43	1.0	3	0.5	0.66 (0.21-2.04)
760–779: certain conditions originating in the perinatal period	2	0.0	2	0.4	-	1	0.0	0	0.0	-
780–799: symptoms, signs, and ill-defined conditions	53	1.3	1	0.2	0.14 (0.02-0.97)	16	0.4	1	0.2	0.62 (0.09-4.42)
800–999: injury and poisoning	1147	27.2	129	22.7	0.92 (0.77-1.09)	350	8.3	41	7.2	1.04 (0.76-1.41)
Undefined cause + Municipal-register-only	251	6.0	83	14.6	3.41 (2.75-4.23)	128	3.0	42	7.4	3.56 (2.63-4.81)

SMR are calculated only if observed death in the total cohort is >10

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SMR are calculated only if observed death in the total cohort is >10

\*reference group=Italians

## studio di mortalità nelle coorti SLM (coorti aperte)

### Infettive

**Table :** deaths, crude rates (x 100,000 py) and Standardised mortality ratios (SMR) with 95% Confidence intervals (CI ) by gender and citizenship. Calendar age 1-64

	Males					Females				
	Italians (tot PY=4,210,156)		HMPC (tot PY=568,085)		SMR	Italians (tot PY=4,210,156)		HMPC (tot PY=568,085)		SMR
	deaths	crude rate	deaths	crude rate		deaths	crude rate	deaths	crude rate	
<b>001–139: infectious and parasitic diseases</b>	115	2.7	13	2.3	1.53 (0.89-2.64)	56	1.3	6	1.1	1.38 (0.62-3.06)
<b>infectious related:</b>										
tumor	663	15.7	31	5.5	1.04 (0.73-1.48)	340	8.1	18	3.2	0.83 (0.52-1.31)
<i>nasopharyngeal</i>	16	0.4	3	0.5	<b>3.60 (1.16-11.15)</b>	1	0.0	0		
<i>non-cardia gastric cancer</i>	227	5.4	8	1.4	0.74 (0.37-1.48)	137	3.3	9	1.6	0.94 (0.49-1.81)
<i>MALT-stomach</i>	0		0			0		0		
<i>liver cancer</i>	295	7.0	15	2.6	1.18 (0.71-1.96)	81	1.9	3	0.5	0.73 (0.24-2.26)
<i>anal carcinoma</i>	117	2.8	4	0.7	0.77 (0.29-2.05)	78	1.9	2	0.4	0.44 (0.11-1.77)
<i>uterine cervixcancer</i>						40	0.9	4	0.7	1.20 (0.45-3.20)
<i>Kaposi's sarcoma</i>	8	0.2	1	0.2		3	0.1	0		
heart deasease	16	0.4	1	0.2	0.49 (0.07-3.46)	12	0.3	0		
hepatitis	353	8.4	10	1.8	0.41 (0.22-0.76)	125	3.0	5	0.9	0.60 (0.25-1.43)
pneumonia	115	2.7	5	0.9	0.68 (0.28-1.63)	77	1.8	2	0.4	0.37 (0.09-1.48)
septicemia	38	0.9	2	0.4	0.83 (0.21-3.30)	29	0.7	1	0.2	0.58 (0.08-4.12)
nervous system	17	0.4	1	0.2	0.54 (0.08-3.82)	23	0.5	0		
<b>001–139: infectious + related</b>	1247	29.6	57	10.0	0.80 (0.61-1.03)	623	14.8	31	5.5	0.75 (0.53-1.07)

SMR are calculatated only if observed death in the total cohort is >10

\*reference group=Italians

cancers attributable to infectious agents with PAF>80%

## studio di mortalità nelle coorti SLM (coorti aperte)

- effetto migrante sano, effetto salmone
  - lieve eccesso per infettive, tumori di origine virale
  - non eccesso traumi
- variabilità: macroarea di cittadinanza, città

### potenzialità:

- coorte aperta
- accuratezza denominatori

### limiti

- potenza (cause-specifiche)
- covariate socio-demografiche
- tempo permanenza
- popolazione residente

## la rete SLM & progetto INMP: sviluppi

- utilizzo di covariate socioeconomiche
- tempo di permanenza in Italia (*proxy*)
- ingresso nuovi centri (Palermo, Catania, Siracusa, Vicenza + rete comuni adiacenti)
- apertura coorti chiuse
- estensione *outcome* (morbosità, accesso ai servizi)
- archivio centralizzato *pooled*

## Gruppo di lavoro INMP immigrati

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**Alessio Petrelli**, Gianfranco Costanzo, Concetta Mirisola, **Teresa Spadea**, **Nicolás Zengarini**, Luisa Mondo, Paolo Carnà, Giuseppe Costa, **Nicola Caranci**, Barbara Pacelli, **Serena Broccoli**, Laura Bonvicini, **Paola Ballotari**, Ferdinando Luberto, **Paolo Giorgi Rossi**, Cristina Canova, Laura Cestari, Lorenzo Simonato, Laura Grisotto, Gianna Terni, Annibale Biggeri, **Laura Cacciani**, Anna Maria Bargagli, Nera Agabiti, Marina Davoli, Claudia Marino

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**Conflitto di interessi: nessuno**

grazie per l'attenzione!

[bpacelli@regione.emilia-romagna.it](mailto:bpacelli@regione.emilia-romagna.it)